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| Course: | **COMPUTER PROGRAMMING LAB** | Date: 31 /10/2024 |
| Course Code: | CSL 113 | Section: B |
| Faculty’s Name: | **Ms. Sara Durrani** | Max Marks: 20 |
| Time Allowed: | 1.5 Hours | Total Pages : 2 |

**INSTRUCTIONS:**

1. This examination is closed book. The use of communication devices and any form of written material is strictly forbidden.
2. Programming questions should be completed using a compiler.
3. Kindly attach your code along with screenshots of the output and upload on the Learning Management System (LMS).
4. Students are permitted to use only the compiler software on the computer; opening or using any other software is prohibited.
5. All questions are compulsory.

Student’s Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Enroll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(USE CAPITAL LETTERS)

**Question # 1 (2 Marks)**

**Sum and Average of Array Elements**

* Write a program that accepts an array of 15 integers from the user. Use loops to calculate and print the average of positive numbers and the average of negative numbers separately.

**Question # 2 (5 Marks)**

**Matrix Multiplication**

* Accept two 3x3 matrices from the user, Matrix A and Matrix B. Write a program to perform matrix multiplication on these matrices and display the resulting matrix.

**Question # 3 (5 Marks)**

**Sum of Border Elements in 2D Array**

* Write a program that accepts a 4x4 matrix from the user. Calculate and display the sum of all elements located on the border of the matrix (first row, last row, first column, last column).

**Question # 4 (3 Marks)**

**Count Positive and Negative Numbers in Array**

* Create a program that accepts 10 integers from the user and stores them in an array. Use loops to count and display how many numbers are positive, how many are negative, and how many are zero.

**Question # 5 (5 Marks)**

**Sum of Secondary Diagonal in 2D Array**

* Write a program that accepts a 4x4 matrix from the user. Calculate and display the sum of the elements on the secondary diagonal (top-right to bottom-left).